

# Polio in North India: What Next?

PATRICIA JEFFERY, ROGER JEFFERY

India has continued to report cases of wild poliovirus and acute flaccid paralysis throughout the 2000s. Indeed, in 2009 the numbers of both exceeded the totals for 2008, by 26% and 9.5%, respectively. Confirmed wild poliovirus cases are increasingly concentrated amongst Muslim children and localised in western Uttar Pradesh and Bihar. The Pulse Polio Initiative has responded by pressurising parents into complying with the administration of multiple doses of polio vaccine to their children. But almost all new cases occur among children who have been vaccinated many times. The problems inhere in the weaknesses of government health services and in the PPI's inadequacies and errors: a focused top-down programme using the wrong vaccine and with dubious targets. It has lost its way and requires a radical shake-up.

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The Global Polio Eradication Initiative (GPEI) was launched in 1988, but India's Pulse Polio Initiative (PPI) began in earnest only in 1995. Since then, supplementary immunisation activities (nationally and regionally coordinated immunisation rounds plus "mop-up" rounds to deal with polio outbreaks) have repeatedly mobilised health sector employees, teachers and volunteers to administer oral polio vaccine at booths as well as through house-to-house visits. The aim had been to eradicate polio by 2000 and certify India polio-free by 2005. Yet, India continues to report wild poliovirus (WPV) cases, as well as cases of acute flaccid paralysis (AFP) that have not been proven to be caused by WPV. The PPI's operational approach can no longer be sustained: on technical as well as socio-political grounds, fundamental flaws require a root-and-branch reconsideration of the whole approach.

Table 1 shows the reported cases of WPV in India since 1998. But WPV cases are only just over 1% of the reported AFP cases:

**Table 1: Reported Wild Polio Cases by Year, India, 1998-2009**

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All	1,934	1,126	265	268	1,600	225	134	66	676	874	559	724

Source: AFP Surveillance Bulletin – India, January 2010, <http://www.npsindia.org/bulletin.pdf>, last accessed 19 January 2010.

Table 2 shows AFP cases in 2008 and 2009 by major contributory states. Across the country reported incidence is rising, in some cases very rapidly. Since 2000, however, confirmed WPV cases have been increasingly clustered in western Uttar Pradesh (UP) and parts of Bihar, and pulse polio activities have largely focused on these "hot spots", with more frequent immunisation rounds and extensive mapping procedures to monitor coverage. Map 1 (p 24) shows that WPV cases nationally are now concentrated – even more in 2009 than in 2008 – with 24 UP districts contributing over 80% of the national total.

But why has the PPI failed to turn the apparent successes of the period

2003-05 into complete eradication or at least a continuing decline; and what role has its "underserved strategy" played in that failure?

## PPI and Its Critics

During the 2000s, the optimism expressed in the World Health Organisation (WHO) weekly epidemiological reports fluctuated in response to the halting progress and reverses of the polio campaign in India, but the reports contain little serious questioning of the programme's basic parameters.

Initially, the programme continued to use trivalent oral polio vaccine (TOPV), but there was a shift to monovalent P1 vaccine (MOPV1) in 2005. By 2007, there were pulse polio rounds every month in UP and Bihar. In 2009, polio cases continued to occur, but predominantly P3 rather than P1. The WHO has recommended adjustments to the combinations of oral vaccines as well as possibly using new MOPV1 with a higher vaccine titre and supplementing oral vaccines with inactivated poliovirus vaccine (IPV) in future (WHO 2009b).

Some critics of pulse polio focus on the choice of oral (OPV) rather than IPV, which is more costly (per unit dose) and requires injection technology and trained staff.

But critics argue that polio cannot be effectively eradicated using OPV, especially among immuno-compromised children who might require numerous – perhaps excessive – doses before attaining immunity (Sathyamala et al 2005: 377). In

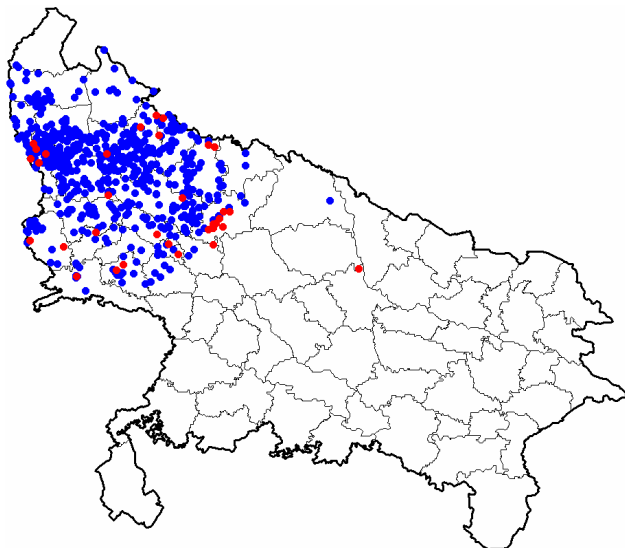
2007-08, for instance, 77% of confirmed polio cases had been administered more than seven doses of OPV and 18% had been given as many as four to seven doses – which suggests that

**Table 2: Acute Flaccid Paralysis Cases Reported by Year and State, 2008-09**

	2008	2009	Percentage Increase
Bihar	11,659	13,384	14.8
Jharkhand	1,532	1,480	-3.4
Madhya Pradesh	2,284	2,719	19.0
Maharashtra	1,915	2,227	16.3
Orissa	1,227	1,466	19.5
Rajasthan	1,353	1,429	5.6
Uttar Pradesh	17,649	18,550	5.1
All other states	7,966	8,644	8.5
All-India	45,585	49,899	9.5

Source: AFP Surveillance Bulletin – India, January 2010, <http://www.npsindia.org/bulletin.pdf>, last accessed 19 January 2010.

Map 1: Wild Polio Cases, Uttar Pradesh, 2009



P1:34 Cases in 17 Districts P3:553 Cases in 25 Districts (One Case Reported to be a Mixture of P1 and P3).  
Source: <http://www.npsindia.org/bulletin.pdf>, last accessed 19 January 2010.

poor coverage is an inadequate explanation for programme failure (WHO 2009b: 284). Moreover, oral vaccine itself can cause polio, and immuno-compromised children may excrete the virus, which can circulate “silently” and be ingested by other children, some of whom may become immune whilst others may develop paralytic

way forward is via a strategy of increasingly frequent immunisation rounds (see e.g. WHO 2009a). So in the 29 months between January 2007 and May 2009, the high risk districts of western UP experienced about 20 rounds of mOPV1, five rounds of mOPV3 and one round of tOPV (WHO 2009b: Figure 1). Yet, as Map 1 and

polio. The silent circulation of poliovirus also means that the successful interruption of its transmission is hard to ascertain.

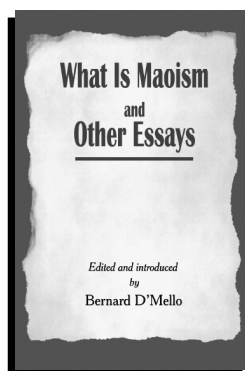
Nevertheless, the official view is that the interruption of poliovirus transmission is imminent provided efforts are redoubled in the endemic areas. Confirmed polio cases are attributed to failures of coverage and the “suboptimal efficacy of opv”: the

Table 1 demonstrate, these rounds have failed to stop a rise in the number of wpv cases. And increasingly obvious, while attention is paid to wpv, cases of AFP continue to rise (from 9.4 per 1,00,000 children aged under 15 in 2007 to 10.2 in 2008 and 11.2 in 2009) with no apparent strategy to respond to the concerns these cases generate.

### ‘Underserved Strategy’

Several districts in western UP contain Muslim majority towns and sizeable numbers of Muslims in rural areas. Such is the situation in the remaining polio hot spots: JP Nagar, Moradabad, Rampur, Bareilly and Badaun. Furthermore, since the early 2000s confirmed cases of polio in India have been increasingly and disproportionately amongst Muslim children: by 2007 Muslim children accounted for 94% of confirmed cases (Chaturvedi 2008: 146 and 271).

The preferred explanation for this pattern is that Muslim children are less likely than others to receive the polio drops. From 2003, a high-profile public awareness campaign – the “underserved



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strategy”, deploying celebrities, community leaders and local volunteers – has been directed particularly at Muslims in the polio hot spots. Muslims in western UP were known to be alienated from Bharatiya Janata Party governments at the state and national levels until 2004, but prominent Islamic institutions gave their support and madrasas hosted pulse polio teams (Chaturvedi 2008).

At the beginning of the 2000s it was plausible that confirmed polio cases were amongst Muslim children who had been consistently missed out during both routine immunisation and pulse polio rounds. By 2006, however, this explanation was becoming tired and increasingly de-linked from the reality that Muslims were “co-operating”, whether out of voluntary belief and understanding (as Chaturvedi 2008 would have it) or through coercion. Military campaign imagery suggests that the latter was almost inevitable: in 2001 a Social Mobilisation Network (SMNet) had been established in the UP hot spots and worked “like an army faced with a critical war situation where troops are deployed, mobilised and constantly trained to face any eventuality” (Chaturvedi 2008: 139).

Our own research in Bijnor – one of the districts at the sharp end of this attention – suggests that pulse polio’s *modus operandi* – in practice even if not in intention – has lost so much goodwill amongst Muslims in western UP that it might be difficult to reorient it and make up lost ground. Pulse polio entails intensive surveillance, energetic persuasion and sometimes coercion. Yet Muslim and Hindu villagers alike complain that the inadequacies of government health services in general are further undermined by the PPI itself (Jeffery and Jeffery 2010). Reorientation is essential, not only to help reduce polio and other forms of childhood paralysis (which tend to be ignored in the rush to eliminate wild polio) but also to reduce the negative effects that PPI is having on all other activities of the UP government health staff.

### ‘Vertical Programmes’

The situation of Muslims in north India is crucial to understanding their tendency to be at best tentative towards the PPI. As the Sachar report details, Muslims are disproportionately concentrated in the most

economically and socially marginal sectors of north Indian society – precisely those sectors with the poor housing and sanitation in which infectious diseases flourish. Opposition to pulse polio is “highly complex and cannot be explained by religious affiliation alone” (since Hindus and others have also resisted) and it has been most conspicuous in areas that have been poorly served by government development programmes (Bhattacharya and Dasgupta 2009: 1182).

Complaints about the poor quality of government health services and about staff apathy, corruption and caste and religious discrimination are widespread in western UP, as are demands for improvement and the prioritisation of health issues other than polio. And villagers are not alone in questioning the wisdom of focusing so much money and staff effort to deal with a single health issue, when general health services leave so much to be desired. Routine immunisation may have been weakened by the focus on polio and some vaccine-preventable diseases (e.g., diphtheria) have re-emerged and primary and public health activities have been disrupted (Bhattacharya and Dasgupta 2009: 1181–82). In recent public health budgetary allocations, 74% of the total immunisation budget has been devoted to pulse polio, and allocations to TB, malaria, and diarrhoeal diseases have been much lower than allocations to pulse polio (Duggal 2009). According to the National Family Health Survey (NFHS) in 2005–06, fewer than 23% of children in UP had “full immunisation” (complete courses for TB, DPT, measles and polio), though coverage for polio was around 88%, and parents reported acute respiratory infections, fevers and diarrhoea among their young children. With infant and under-five mortality rates at 73 and 96 per 1,000 live births respectively in UP and about 5 million births annually, around 3,60,000 infants each year die before their first birthday and another 1,00,000 before their fifth birthday – compared with a maximum of 1,200 confirmed polio cases nationally in the 2000s.

Vertical programmes in India have a long history of evoking a range of responses from their target populations, with some people seemingly, willingly accepting

what is being pressed upon them but others offering resistance; sometimes resistance that has been met with coercion, which becomes normalised and feeds into other campaigns. For instance, the family planning programme’s single-mindedness and coercive practices, particularly against the poor and religious minorities in northern India, have left a lasting legacy that colours how Muslims in particular respond to government health initiatives (Jeffery and Jeffery 2010). Bhattacharya and Dasgupta argue that “(a)ll immunisation campaigns are deeply social and political phenomena”, not simply medical ones, and the problems associated with the polio programme cannot simply be resolved by technical means or the infusion of more cash (2009: 1177–83). They also note that polio programme field workers in western UP have been under great pressure during the 2000s and that “outbreaks of wild poliovirus had brought on the threat or imposition of penalties from the top, all of which was leading to demoralisation and discontent among personnel of all ranks”, whilst hostility and nervousness were generated among civilians when “polio vaccination was carried out forcibly by health administrators, with the support of the local police” (Bhattacharya and Dasgupta 2009: 1181–82). This is clearly unsustainable and unjustifiable in light of the continuing cases among those who have taken the drops, often many times.

### Conclusions

Resistance to pulse polio has been characterised as a particularly Muslim phenomenon and Muslims have been the focus of the continuing immunisation activities. Rather than re-examining the programme’s widely-criticised systemic limitations, the official response has been more energetic efforts to persuade doubting and resisting civilians to comply with ever more frequent and intensively-monitored immunisation rounds. An “independent evaluation of major barriers to interrupting poliovirus transmission” in October 2009 concluded (somewhat confusingly, given the evidence of rising rates cited above) that

the high coverage observed in both UP and Bihar reflected the most thorough, well managed vaccination effort that team members had ever seen. In short, programme

implementation was not viewed as a constraint to elimination of polio (Mohamed et al 2009: 7).

The underserved strategy is a tacit acknowledgement that Muslims have fared particularly badly in regard to government public health services and that their children are more liable than others to succumb to an array of poverty-related ailments, aside from polio itself. Yet little has been undertaken to remedy the appalling state of government health services in western UP or deal with other aspects of the public health situation (affecting not only Muslims, of course). Some idea of the irrationalities to be found in vertical disease control programmes emerge – despite the authors' best intentions, one guesses – from the recent review, which blames

indiscriminate defecation, contaminated water supplies, and extreme crowding of population... Add to this an extremely high prevalence of malnutrition, unclean supplementary food and extremely high birth rate with inter-birth intervals as close as one year, and the vulnerability of the very young to polio and other enterovirus infection becomes very apparent (Mohamed et al 2009: 7).

This (along with blaming the local population for being "mobile") is a picture that is very lopsided, when applied to western UP: generalisations from the Kosi valley seem to have been liberally

applied to UP as well. Rather than suggest ways of overcoming the marginalisation produced by poor general health services and major health threats, however, the polio-wallahs just reiterate the chimera of complete eradication (after which we can all, presumably, go home and relax – except for those suffering from non-polio AFP and all the other gastro-enteric and other diseases to which children in these areas are subject).

It is worth reiterating: Children in the hot spots have received numerous doses (perhaps overdoses?) of oral polio vaccine. Cases are rising. And most of those identified with wild polio are Muslims who have had many doses of vaccine. More of the same will not solve the problem. Meanwhile, other diseases are allowed to gain more footholds because EPI is so inadequate – and even the review team have to admit the plausibility of the link to the pulse polio programme (Mohamed et al 2009).

What needs to be done is to recognise that polio cannot be eradicated, and that planning must move towards a routine immunisation programme that covers all children against all communicable and preventable diseases. This requires a reallocation of resources away from the high profile but ultimately barren pulse polio initiative into revitalising the public health

services of UP and Bihar. More money is not going to solve the problems they face, but more money will certainly help, as will more of the time of health workers, once they are released from monthly pulse polio activities and military-style campaigns that are out of place in public health.

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